

CLAIMS

1. (Currently Amended) A method for manufacturing a rotatable cutting blade assembly for an extruder, the method comprising the steps of:

selecting a substantially circular cutting blade holder made of a first material having two spaced apart faces and having a plurality of cutting blade channels around the outer periphery of the cutting blade holder, the channels forming an angle with respect to a plane defined by the faces of the cutting blade holder;

inserting a piece of a second material adaptable for use as a cutting blade in each said cutting blade channel, the piece of second material having sufficient height to extend at least one edge of the cutting blade beyond the plane defined by at least one face of the cutting blade holder;

~~irreversibly~~ permanently bonding each said piece of second material to said cutting blade holder;

sharpening at least a portion of at least ~~one~~ two opposite edges of the cutting blade; and

forming a first cutting plane and an opposite second cutting plane, each cutting plane being generally parallel to the plane defined by at least one face of the cutting blade holder for cutting extruded materials, wherein the cutting direction of the first cutting plane is opposite of the cutting direction of the second cutting plane.

2. (Original) The method of Claim 1 wherein said cutting blade holder is made of a material that is responsive to an inductive heating process.

3. (Cancelled).

4. (Original) The method of Claim 1 wherein said cutting blade holder is molded.

5. (Cancelled).

6. (Original) The method of Claim 1 where in said second material is harder than said first material.
7. (Cancelled)
8. (Original) The method of Claim 1 wherein the step of bonding further comprises the steps of:
brazing with a solder along substantially the entire length of said cutter blade channel,
and
heating to a temperature that will bond said cutting blade holder, said piece of the second material, and said solder together.
9. (Currently Amended) A method for manufacturing a rotatable cutting blade assembly for an extruder, the method comprising the steps of:
selecting a substantially circular cutting blade holder made of a first material having two spaced apart faces and having at least one cutting blade channel around the periphery of the cutting blade holder, the channel forming an angle with respect to a plane defined by the faces of the cutting blade holder;
inserting a piece of a second material adaptable for use as a cutting blade in each said cutting blade channel, the piece of second material having sufficient height to extend at least one edge of the piece of second material beyond the plane defined by at least one face of the cutting blade holder;
~~irreversibly~~ permanently bonding said piece of the second material to said cutting blade holder; and
sharpening at least a portion of at least ~~one~~ two opposite edges of the piece of second material; and

forming a first cutting plane and an opposite second cutting plane, each cutting plane being generally parallel to the plane defined by at least one face of the cutting blade holder for cutting extruded materials, wherein the cutting direction of the first cutting plane is opposite of the cutting direction of the second cutting plane.

10. (Original) The method of Claim 9 wherein said cutting blade holder is made of a material that is responsive to an inductive heating process.
11. (Cancelled)
12. (Original) The method of Claim 9 wherein said cutting blade holder is molded.
13. (Cancelled)
14. (Original) The method of Claim 9 where in said second material is harder than said first material.
15. (Cancelled)
16. (Original) The method of Claim 9 wherein the step of bonding further comprises the steps of:
brazing with a solder along substantially the entire length of said cutter blade channel,
and
heating to a temperature that will bond said cutting blade holder, said piece of the second material, and said solder together.
17. (Withdrawn) An apparatus for cutting materials comprising:

a cutting blade assembly, comprising:

- a) a cutting blade holder having a periphery and containing at least one cutting blade channel;
- b) a cutting blade made of a second material secured in each channel of said cutting blade holder by bonding; and

a cup to which at least two cutting blade assemblies are attached.

18. (Withdrawn) The apparatus of Claim 17 wherein each said cutting blade holder is machined from a material that is responsive to an inductive heating process.

19. (Withdrawn) The apparatus of Claim 17 wherein each said cutting blade assembly is secured to said cup by a fastening mechanism inserted through a slot in said cutting blade holder and into a hole in said cup.

20. (Withdrawn) The apparatus of Claim 17 wherein said cup is secured to a machinery drive mechanism.

21. (Withdrawn) The apparatus of Claim 17 wherein each said cutting blade holder is machined from a material that has a co-efficient of thermal expansion less than 0.000007 inch/degree Fahrenheit

22. (Withdrawn) The apparatus of Claim 17 wherein each said cutting blade holder is molded.

23. (Withdrawn) The apparatus of Claim 17 wherein each said cutting blade is made of a harder material than each said cutting blade holder.

24. (Withdrawn) The apparatus of Claim 17 wherein each said cutting blade is bonded in said channel of each said cutting blade holder by means of:
 brazing with a solder material placed in said channel, and
 heating to a temperature that will bond said cutting blade holder, cutting blade and said solder materials together.
25. (Withdrawn) The apparatus of Claim 17 wherein each said cutting blade is made of some material other than carbide and coated with a layer of carbide, thereafter sharpened.
26. (Withdrawn) An extrusion process using the apparatus of Claim 17 for cutting extruded material.
27. (Withdrawn) An extrusion process according to Claim 26 further comprising rotating said apparatus at a speed of less than 1500 revolutions per minute.
28. (Withdrawn) An apparatus for cutting materials comprising:
 a substantially symmetrical, rotatable cutting blade holder having a periphery and containing a plurality of cutting blade channels; and
 at least one cutting blade made of a second material secured in each channel of said cutting blade holder.
29. (Withdrawn) The apparatus of Claim 28 wherein said plurality of cutting blades each have a initial cutting edge, wherein each said plurality of cutting edges has a maximum deviation from a common plane not greater than 0.005 inches.

30. (Withdrawn) The apparatus of Claim 28 wherein said cutting blade holder is machined from a material that is responsive to an inductive heating process.
31. (Withdrawn) The apparatus of Claim 28 wherein said apparatus is secured to a machinery drive mechanism.
32. (Withdrawn) The apparatus of Claim 28 wherein said cutting blade holder is machined from a material that has a co-efficient of thermal expansion less than 0.000007 inch/degree Fahrenheit
33. (Withdrawn) The apparatus of Claim 28 wherein said cutting blade holder is molded.
34. (Withdrawn) The apparatus of Claim 28 wherein said cutting blade made of a harder material than said cutting blade holder.
35. (Withdrawn) The apparatus of Claim 28 wherein said cutting blade is bonded in said channel of said cutting blade holder by means of:
 brazing with a solder material placed in said channel, and
 heating to a temperature that will bond said cutting blade holder, said cutting blade, and said solder together.
36. (Withdrawn) The apparatus of Claim 28 wherein said cutting blade holder is configured with a plurality of channels equally spaced about the periphery of said cutting blade holder, with the centerline of said channel being located in the centerline of the thickness of said cutting blade holder.

37. (Withdrawn) The apparatus of Claim 28 wherein said cutting blade is made of carbide and sharpened on at least one side of blade that is substantially parallel to said cutting blade holder, said cut edge making an angle that is substantially parallel to said cutting blade holder.
38. (Withdrawn) The apparatus of Claim 28 wherein said cutting blade is made of some material other than carbide and coated with a layer of carbide, thereafter sharpened.
39. (Withdrawn) An extrusion process using the apparatus of Claim 28 for cutting extruded material.
40. (Withdrawn) An extrusion process according to Claim 39 further comprising rotating said apparatus at a speed of less than 1500 revolutions per minute.
41. (Previously Presented) The method of Claim 1 wherein the first material is carbon steel.
42. (Previously Presented) The method of Claim 9 wherein the first material is carbon steel.
43. (Previously Presented) The method of Claim 1 wherein the at least a portion of at least one edge of the cutting blade is sharpened such that the sharpened edge is parallel to the plane defined by the face of the cutting blade holder.
44. (Previously Presented) The method of Claim 9 wherein the at least a portion of at least one edge of the piece of second material is sharpened such that the sharpened edge is parallel to the plane defined by the face of the cutting blade holder.